A. In the claims:

Please amend the claims as follows:

1. (Withdrawn-currently amended) A process of making an electrical device, the process including:

producing a dielectric material comprised of a top surface with cavities remaining from removing a portion of the dielectric material; and

building up a conductive layer on the dielectric material to fill the cavities to form teeth set in and under the top surface of the dielectric material and form a portion of circuitry of the electrical device, wherein a plurality of the cavities are obtuse with respect to the top surface, and a plurality of the cavities are at least 1 tenth of a mil deep and less than ~~2~~ 1.75 tenths of a mil deep.

2. (Withdrawn) The process of claim 1, wherein the removing of the portion is sufficient to produce a surface gloss measurement at an angle of 60 degrees of less than 10%.

3. (Withdrawn) The method of claim 2, wherein the building up is sufficient to produce a peel strength greater than the peel strength than that of a single desmear process.

4. (Withdrawn) The process of claim 1, wherein the removing does not include physical roughening, and the building up the conductive layer includes building up the conductive layer to produce a dielectric surface contact area greater than a dielectric surface contact area that would be produced by a single pass roughening.

5. (Withdrawn) The process of claim 1, wherein the removing does not include physical roughening, and the building up the conductive layer includes building up the conductive layer to produce a peel strength greater than a peel strength that would be produced by a single desmear process.

6. (Withdrawn) The process of claim 1, wherein the removing does not include physical roughening, and the building up the conductive layer includes filling the cavities sufficiently that separation requires destroying integrity of at least one of the conductive layer and the dielectric material.

7. (Withdrawn-currently amended) A process of making an electrical device, the process including:

producing a dielectric material including cavities remaining from removing a portion of the dielectric material; and

building up a conductive layer on the dielectric material to fill the cavities to form a surface of substantially angular teeth set in the dielectric material and form a portion of circuitry of the electrical device, and wherein a sample of the circuitry has at least 20% of the teeth being at least 1 tenth of a mil deep and less than 1.75 tenths of a mil deep.

8. (Withdrawn) The process of claim 7, wherein the removing of the portion is sufficient to produce a surface gloss measurement at an angle of 60 degrees of less than 10%.

9. (Withdrawn) The process of claim 7, wherein the removing does not

include physical roughening, and the building up the conductive layer includes building up the conductive layer to produce a dielectric surface contact area greater than a dielectric surface contact area that would be produced by a single pass roughening.

10. (Withdrawn) The process of claim 7, wherein the removing does not include physical roughening, and the building up the conductive layer includes building up the conductive layer to produce a peel strength greater than a peel strength that would be produced by a single desmear process.

11. (Withdrawn) The process of claim 7, wherein the removing does not include physical roughening, and the building up the conductive layer includes filling the cavities sufficiently that separation would destroy integrity of at least one of the conductive layer and the dielectric material.

12. (Withdrawn) A process of making an electrical device, the process including:

building up a conductive layer of material on a layer of dielectric material, the layers joined in a saw-tooth manner made of both materials in an interlocking bite to form a portion of circuitry of the electrical device, the conductive layer comprised of teeth, and wherein a sample of the circuitry has at least 5,000 of the teeth per linear inch.

13. (Withdrawn-currently amended) The process of claim 12, wherein the electrical device comprises a micro via interconnect for the circuitry.

14. (Withdrawn) The process of claim 12, wherein, prior to the building up, the layer of the dielectric material has a surface gloss measurement at an angle of 60 degrees of less than 10%.

15. (Withdrawn) The process of claim 12, wherein the removing does not include physical roughening, and the building up the conductive layer includes building up the conductive layer to produce a dielectric surface contact area greater than a dielectric surface contact area that would be produced by a single pass roughening.

16. (Withdrawn) The process of claim 12, wherein the producing the interlocking bite does not include physical roughening, and the building up the conductive layer includes building up the conductive layer to produce a peel strength greater than a peel strength that would be produced by a single desmear process.

17. (Withdrawn) The process of claim 12, wherein the building up the conductive layer includes building up the conductive layer sufficiently that separation would destroy integrity of at least one of the conductive layer and the dielectric material.

18. (Withdrawn-currently amended) A process of making an electrical device, the process including:

building up a conductive layer to fill undercuttings with respect to a surface of a dielectric material, a plurality of the undercuttings being obtuse to the surface and ~~at least 1.5~~ in the range of 1 tenth of a mil deep to 1.75 tenths of a mil deep, to form a portion of circuitry of the electrical device.

19. (Withdrawn) The process of claim 18, wherein the building up the conductive layer to fill the undercuttings includes forming teeth.

20. (Withdrawn) A process of making an electrical device, the process including:

producing a dielectric material with cavities remaining after removing an other portion of the dielectric material sufficient to produce a surface gloss measurement at an angle of 60 degrees of less than 10%; and

building up a conductive layer to fill the cavities and form electrical device circuitry.

21. (Withdrawn) The process of claim 20, wherein a plurality of the cavities is obtusely angled and the building up the conductive layer includes forming teeth.

22. (Withdrawn) The process of claim 20, wherein the removing does not include physical roughening, and the building up the conductive layer includes building up the conductive layer to produce a dielectric surface contact area greater than a dielectric surface contact area that would be produced by a single pass roughening.

23. (Withdrawn) The process of claim 20, wherein the removing does not include physical roughening, and the building up the conductive layer fills the cavities sufficiently to produce a peel strength greater than a peel strength that would be produced by a single desmear process.

24. (Withdrawn) The process of claim 20, wherein the removing does not include physical roughening, and the building up the conductive layer includes building up the conductive layer sufficiently that separation would destroy integrity of at least one of the conductive layer and the dielectric material.

25. (Withdrawn-currently amended) A process for making an electrical device, the process including:

forming electrical device circuitry by building up a conductive layer on a dielectric material at a dielectric surface area greater than a dielectric surface area that would be produced by a single pass roughening, wherein a sample of the circuitry has at least 20% of the teeth that are within the range of 1 tenth of a mil deep to ~~2~~ 1.75 tenths of a mil deep.

26. (Withdrawn-currently amended) The process of claim 25, wherein the electrical device comprises a micro via interconnect for the circuitry.

27. (Withdrawn) The process of claim 25, wherein the building up the conductive layer includes building up the conductive layer in cavities formed without physical roughening and sufficiently to produce a peel strength greater than a peel strength that would be produced by a single desmear process.

28. (Withdrawn) The process of claim 25, wherein the conductive layer is built up sufficiently that separation would destroy integrity of at least one of the conductive layer and the dielectric material.

29. (Withdrawn) A process of making an electrical device, the process including:

combining a dielectric material with a conductive layer to form a portion of circuitry of the electrical device, said combining being carried out with means for joining the conductive layer to the dielectric material, the means including teeth built up on the dielectric material and angled sufficiently for mechanically gripping the dielectric material in three dimensions.

30. (Withdrawn) A process of making an electrical device, the process including:

combining a dielectric material with means for joining a conductive layer built up on the dielectric material to produce a peel strength greater than a peel strength that would be produced by a single desmear process, the conductive layer forming a portion of circuitry.

31. (Withdrawn) The process of claim 30, wherein the combining is carried out with the means for joining comprised of teeth, a plurality of the teeth being obtuse to a top surface of the dielectric material and at least 1 tenth of a mil deep.

32. (Withdrawn-currently amended) A process of making an electrical device, the process including:

forming electrical device circuitry by building up a conductive layer on a surface of dielectric material to produce a peel strength greater than a peel strength that would be produced by a single desmear process, wherein a sample of the circuitry includes at least 20%

of the teeth that are within the range of 1 tenth of a mil deep to ~~2~~ 1.75 tenths of a mil deep.

33. (Withdrawn) The process of claim 32, wherein the electrical device comprises a circuit board.

34. (Withdrawn) The process of claim 32, wherein the building up the conductive layer includes building up the conductive layer sufficiently that separation would destroy integrity of at least one of the conductive layer and the dielectric material.

35. (Withdrawn) A process of making an electrical device, the process including:

producing a dielectric material comprising a top surface remaining from removing a portion of the dielectric material; and

applying means for mechanically gripping a conductive layer to the surface of the dielectric material so that a conductive layer is burrowed in and under the top surface of the dielectric material, wherein the conductive layer forms a portion of circuitry of the electrical device.

36. (Withdrawn) The process of claim 35, wherein the applying is carried out with the means for mechanically gripping comprising teeth.

37. (Withdrawn) A process of making an electrical device, the process including:

forming electrical device circuitry by building up a conductive layer on a dielectric

material sufficiently that separation would destroy integrity of the conductive layer and of the dielectric material.

38. (Withdrawn) The process of claim 37, wherein building up the conductive layer includes forming teeth.

39. (Withdrawn) A process of making an electrical device, the process including:

building up a conductive layer on a dielectric material with a surface gloss measurement at an angle of 60 degrees of less than 10% to form circuitry of the electrical device.

40. (Withdrawn) The process of claim 39, wherein the building up the conductive layer includes producing teeth.

41. (Withdrawn) The process of claim 39, wherein building up the conductive layer includes building up the conductive layer sufficiently that separation would destroy integrity of the conductive layer.

42. (Withdrawn) The process of claim 39, wherein the building up the conductive layer includes building up the conductive layer sufficiently that separation would destroy integrity of the dielectric material.

43. (Withdrawn) The process of claim 39, wherein the building up the

conductive layer includes building up the conductive layer sufficiently that separation would destroy integrity of the conductive material and the dielectric material.

44. (Withdrawn) A process of making an electrical device, the process including:

combining a dielectric material with means for joining a conductive layer built up on the dielectric material at a dielectric surface contact area greater than a dielectric surface contact area that would be produced by a single pass roughening, the conductive layer forming a portion of circuitry.

45. (Withdrawn) The process of claim 44, wherein the combining is carried out with the means for joining comprised of teeth.

46. (Withdrawn) A process of making an electrical device, the process including:

combining a dielectric material with means for joining a conductive layer built up on the dielectric material sufficiently that separation requires destroying integrity of at least one of the conductive layer and the dielectric material, said means for joining comprising filled cavities that form a portion of circuitry of the electrical device.

47. (Withdrawn) The process of claim 44, wherein the combining is carried out with the filled cavities comprising teeth.

48. (Withdrawn) The process of any one of claims 1, 7, 11, 19, 21, 25, 29,

31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 5,000 said teeth per linear inch.

49. (Withdrawn) The process of any one of claims 1, 7, 12, 19, 21, 25, 29, 31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 10,000 said teeth per linear inch.

50. (Withdrawn) The process of any one of claims 1, 7, 12, 19, 21, 25, 29, 31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 15,000 said teeth per linear inch.

51. (Withdrawn) The process of any one of claims 1, 7, 12, 19, 21, 25, 29, 31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 25,000 said teeth per square inch.

52. (Withdrawn) The process of any one of claims 1, 7, 12, 19, 21, 25, 29, 31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 100,000 said teeth per square inch.

53. (Withdrawn) The process of any one of claims 1, 7, 12, 19, 21, 25, 29, 31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 200,000 said teeth per square inch.

54. (Withdrawn) The process of any one of claims 1, 7, 12, 19, 21, 25, 29,

31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 20% of the teeth are shaped to mechanically grip the dielectric material.

55. (Withdrawn) The process of any one of claims 1, 7, 12, 19, 21, 25, 29, 31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 50% of the teeth that are obtuse shaped.

56. (Withdrawn-currently amended) The process of any one of claims 1, 12, 17, 19, 21, ~~25,~~ 29, 31, ~~32,~~ 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 20% of the teeth that are within the range of at least 1 tenth of a mil deep to 1.75 tenths of a mil deep.

57. (Withdrawn-currently amended) The process of any one of claims 1, 7, 12, 19, 21, 25, 29, 31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 50% of the teeth that are within the range of at least 1 tenth of a mil deep to 1.75 tenths of a mil deep.

58. (Withdrawn-currently amended) The process of any one of claims 1, 3, 7, 12, 17, 19, 21, ~~,~~ 29, 31, ~~,~~ 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 20% of the teeth that are within the range of 1 tenth of a mil deep to ~~2~~ 1.5 tenths of a mil deep.

59. (Withdrawn-currently amended) The process of any one of claims 1, 2, 3, 7, 12, 17, 19, 21, ~~,~~ 31, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 50% of the teeth that are within the range of 1 tenth of a mil deep to ~~2~~ 1.5 tenths of a mil deep.

60. (Withdrawn) The process of any one of claims 1, 7, 12, 19, 21, 25, 29, 31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 20% of the teeth that are in the range of 1.5 tenths of a mil deep to 1.75 tenths of a mil deep.

61. (Withdrawn) The process of any one of claims 1, 7, 12, 19, 21, 25, 29, 31, 32, 36, 38, 45, or 47 wherein:

a sample of the circuitry includes at least 50% of the teeth that are in the range of 1.5 tenths of a mil deep to 1.75 tenths of a mil deep.

62. (Withdrawn) The process of claim 48, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

63. (Withdrawn) The process of claim 49, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

64. (Withdrawn) The process of claim 50, further including configuring the

circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

65. (Withdrawn) The process of claim 51, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

66. (Withdrawn) The process of claim 52, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

67. (Withdrawn) The process of claim 53, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

68. (Withdrawn) The process of claim 54, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

69. (Withdrawn) The process of claim 55, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

70. (Withdrawn) The process of claim 56, further including configuring the

circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

71. (Withdrawn) The process of claim 57, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

72. (Withdrawn) The process of claim 58, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

73. (Withdrawn) The process claim 59, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

74. (Withdrawn) The process of claim 60, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

75. (Withdrawn) The process of claim 61, further including configuring the circuitry of the electrical device as multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

76. (Withdrawn) The process of claim 48, further including configuring the

circuitry as of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

77. (Withdrawn) The process of claim 49, further including configuring the circuitry as double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

78. (Withdrawn) The process of claim 50, further including configuring the circuitry as double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

79. (Withdrawn) The process of claim 51, further including configuring the circuitry as of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

80. (Withdrawn) The process of claim 52, further including configuring the circuitry as of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

81. (Withdrawn) The process of claim 53, further including configuring the circuitry as of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

82. (Withdrawn) The process of claim 54, further including configuring the

circuitry as of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

83. (Withdrawn) The process of claim 55, further including configuring the circuitry as double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

84. (Withdrawn) The process of claim 56, further including configuring the circuitry as double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

85. (Withdrawn) The process of claim 57, further including configuring the circuitry as double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

86. (Withdrawn) The process of claim 58, further including configuring the circuitry as double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

87. (Withdrawn) The process of claim 59, further including configuring the circuitry as double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

88. (Withdrawn) The process of claim 60, further including configuring the

circuitry as double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

89. (Withdrawn) The process of claim 61, further including configuring the circuitry as double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

90. (Withdrawn) A product produced by the process of any one of claims 1, 7, 12, 18, 20, 25, 29, 30, 35, 32, 37, 44, or 46.

91. (Previously presented) An electrical device including:

a dielectric material having a top surface with cavities remaining from removal of a portion of the dielectric material;

a conductive layer built up on the dielectric material to fill the cavities to form teeth set in and under the top surface of the dielectric material; and wherein:

the conductive layer is a portion of circuitry of the electrical device, and a plurality of the cavities are obtuse with respect to the top surface and are at least 1 tenth of a mil deep.

92. (Previously presented) The device of claim 91, wherein the removal of the portion is sufficient to produce a surface gloss measurement at an angle of 60 degrees of less than 10%.

93. (Currently amended) The device of claim 91, wherein the ~~conductive layer built up to fill the cavities is comprised of teeth~~ electrical device comprises a micro via

interconnect for the circuitry.

94. (Previously presented) The device of claim 91, wherein the removal does not include physical roughening, and the conductive layer has a dielectric surface contact area greater than a dielectric surface contact area that would be produced by a single pass roughening.

95. (Previously presented) The device of claim 91, wherein the removal does not include physical roughening, and the conductive layer fills in the cavities sufficiently to produce a peel strength greater than a peel strength that would be produced by a single desmear process.

96. (Previously presented) The device of claim 91, wherein the conductive layer fills in the cavities sufficiently that separation requires destroying integrity of at least one of the conductive layer and the portion of the dielectric material.

97. (Currently amended) An electrical device including:

a dielectric material having cavities remaining from removal of a portion of the dielectric material;

a conductive layer built up on the dielectric material to fill the cavities to form a surface of substantially angular teeth set in the dielectric material; and wherein:

the conductive layer is a portion of circuitry of the electrical device, and a ~~sample of the circuitry has at least 20%~~ a plurality of the teeth ~~being~~ are at least 1 tenth of a mil deep and less than ~~2~~ 1.75 tenths of a mil deep.

98. (Previously presented) The device of claim 97, wherein the removal of the portion is sufficient to produce a surface gloss measurement at an angle of 60 degrees of less than 10%.

99. (Previously presented) The device of claim 97, wherein the removal does not include physical roughening, and the conductive layer has a dielectric surface contact area greater than a dielectric surface contact area that would be produced by a single pass roughening.

100. (Previously presented) The device of claim 97, wherein the removal does not include physical roughening, and the conductive layer fills in the cavities sufficiently to produce a peel strength greater than a peel strength that would be produced by a single desmear process.

101. (Previously presented) The device of claim 97, wherein the conductive layer built up is built up sufficiently that separation would destroy integrity of at least one of the conductive layer and the dielectric material.

102. (Previously presented) An electrical device including:

a conductive layer of material built up on a layer of a dielectric material, the layers joined in a saw-tooth manner made of both materials in an interlocking bite; wherein

the conductive layer is a portion of circuitry of the electrical device, the conductive layer is comprised of teeth, and a sample of the circuitry has at least 5,000 of the

teeth per linear inch.

103. (Currently amended) The device of claim 102, wherein the electrical device comprises a micro via interconnect for the circuitry.

104. (Previously presented) The device of claim 102, wherein the dielectric material has a surface gloss measurement at an angle of 60 degrees of less than 10% prior to the conductive layer of material being built up thereon.

105. (Previously presented) The device of claim 102, wherein the conductive layer has a dielectric surface contact area that, without physical roughening, is greater than a dielectric surface contact area that would be produced by a single pass roughening.

106. (Previously presented) The device of claim 102, wherein the interlocking bite is formed without physical roughening, and the conductive layer built up is built up sufficiently to produce a peel strength greater than a peel strength that would be produced by a single desmear process.

107. (Previously presented) The device of claim 102, wherein the conductive layer built up is built up sufficiently that separation would destroy integrity of at least one of the conductive layer and the dielectric material.

108. (Previously presented) An electrical device including:

a conductive layer including a surface built up to fill undercuttings in a dielectric

material, a plurality of the undercuttings being obtuse to the surface and at least 1.5 tenths of a mil deep, wherein

the conductive layer is a portion of circuitry of the electrical device.

109. (Previously presented) The device of claim 108, wherein the conductive layer built up to fill the undercuttings is comprised of teeth.

110. (Previously presented) An electrical device including:

a dielectric material with cavities remaining after removal of a portion of the dielectric material sufficient to produce a surface gloss measurement at an angle of 60 degrees of less than 10%; and

electrical device circuitry comprised of a conductive layer built up to fill the cavities.

111. (Previously presented) The device of claim 110, wherein a plurality of the cavities are obtusely angled, and the conductive layer built up to fill the cavities is comprised of teeth.

112. (Previously presented) The device of claim 110, wherein the conductive layer has a dielectric surface contact area that, without physical roughening, is greater than a dielectric surface contact area that would be produced by a single pass roughening.

113. (Previously presented) The device of claim 110, wherein the removal does not include physical roughening, and the conductive layer fills in the cavities sufficiently to

produce a peel strength greater than a peel strength that would be produced by a single desmear process.

114. (Previously presented) The device of claim 110, wherein the conductive layer is sufficiently built up that separation destroys integrity of at least one of the conductive layer and the dielectric material.

115. (Currently amended) An electrical device including:

a dielectric material; and

electrical device circuitry comprising a conductive layer built up on the dielectric material at a dielectric surface area greater than a dielectric surface area that would be produced by a single pass roughening; and wherein

a ~~sample of the circuitry has at least 20% of~~ plurality of the teeth ~~that~~ are within the range of 1 tenth of a mil deep to ~~2~~ 1.75 tenths of a mil deep.

116. (Currently amended) The device of claim 115, wherein the electrical device comprises a micro via interconnect for the circuitry.

117. (Previously presented) The device of claim 115, wherein the conductive layer built up is built up in cavities formed without physical roughening and sufficiently to produce a peel strength greater than a peel strength that would be produced by a single desmear process.

118. (Previously presented) The device of claim 115, wherein the conductive

layer built up is built up sufficiently that separation requires destroying integrity of at least one of the conductive layer and the dielectric material.

119. (Previously presented) An electrical device including:

a dielectric material;

a conductive layer forming a portion of circuitry of the electrical device; and

means for joining the conductive layer to the dielectric material, the means including teeth built up on the dielectric material and angled sufficiently for mechanically gripping the dielectric material in three dimensions.

120. (Previously presented) An electrical device including:

a dielectric material; and

means for joining a conductive layer built up on the dielectric material to produce a peel strength greater than a peel strength that would be produced by a single desmear process, wherein the conductive layer is a portion of circuitry, and portions of the conductive layer are obtuse to a top surface of the dielectric material and at least 1 tenth of a mil deep.

121. (Previously presented) The device of claim 120, wherein the means for joining is comprised of teeth.

122. (Currently amended) An electrical device including:

a dielectric material; and

electrical device circuitry comprising a conductive layer built up on a surface of the dielectric material to produce a peel strength greater than a peel strength that would be

produced by a single desmear process; and wherein

a ~~sample of the circuitry has at least 20%~~ plurality of the teeth ~~that~~ are within the range of 1 tenth of a mil deep to ~~2~~ 1.75 tenths of a mil deep.

123. (Previously presented) The device of claim 122, wherein the electrical device comprises a circuit board.

124. (Previously presented) The device of claim 122, wherein the conductive layer built up is built up sufficiently that separation would destroy integrity of at least one of the conductive layer and the dielectric material.

125. (Previously presented) An electrical device including:

a dielectric material having a top surface with a surface remaining from removal of a portion of the dielectric material; and

means for mechanically gripping a conductive layer to the surface of the dielectric material so that the conductive layer is burrowed in and under the top surface of the dielectric material, wherein the conductive layer forms a portion of circuitry of the electrical device.

126. (Previously presented) The device of claim 125, wherein the means for mechanically gripping is comprised of teeth.

127. (Previously presented) An electrical device including:

a dielectric material; and

electrical device circuitry comprising a conductive layer built up on the dielectric material sufficiently that separation would require destroying integrity of the conductive layer and of the dielectric material.

128. (Previously presented) The device of claim 127, wherein the conductive layer is comprised of teeth.

129. (Previously presented) An electrical device including:

a dielectric material having a surface gloss measurement at an angle of 60 degrees of less than 10%; and

circuitry of the electrical device comprised of a conductive layer on the dielectric material.

130. (Previously presented) The device of claim 129, wherein the conductive layer is comprised of teeth.

131. (Previously presented) The device of claim 129, wherein the conductive layer built up on the dielectric material is built up sufficiently that separation would destroy integrity of the conductive layer.

132. (Previously presented) The device of claim 129, wherein the conductive layer built up on the dielectric material is built up sufficiently that separation would destroy integrity of the dielectric material.

133. (Previously presented) The device of claim 129, wherein the conductive layer built up on the dielectric material is built up sufficiently that separation would destroy integrity of the conductive layer and the dielectric material.

134. (Previously presented) An electrical device including:

a dielectric material; and

means for joining a conductive layer built up on the dielectric material at a dielectric surface contact area greater than a dielectric surface contact area that would be produced by a single pass roughening, wherein the conductive layer is a portion of circuitry of the electrical device.

135. (Previously presented) The device of claim 134, wherein the means for joining is comprised of teeth.

136. (Previously presented) An electrical device including:

a dielectric material; and

means for joining a conductive layer built up on the dielectric material sufficiently that separation requires destroying integrity of at least one of the conductive layer and the dielectric material, said means for joining comprising filled cavities that form a portion of circuitry of the electrical device.

137. (Previously presented) The device of claim 134, wherein the filled cavities comprises teeth.

138. (Currently amended) The device of any one of claims ~~93~~91, 97, 101, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 5,000 said teeth per linear inch.

139. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 10,000 said teeth per linear inch.

140. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 15,000 said teeth per linear inch.

141. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 25,000 said teeth per square inch.

142. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 100,000 said teeth per square inch.

143. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 200,000 said teeth per square inch.

144. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 20% of the teeth have a shape that mechanically grips the dielectric material.

145. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 50% of the teeth structured obtusely with respect to a line within a plane defined by a surface of the dielectric material that was removed.

146. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 107, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 20% of the teeth that are ~~within the range of~~ at least 1 tenth of a mil deep.

147. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 50% of the teeth that are ~~within the range of~~ at least 1 tenth of a mil deep.

148. (Currently amended) The device of any one of claims ~~93~~91, 97, 98, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 20% of the teeth that are within the range of 1 tenth of a mil deep to ~~2~~ 1.75 tenths of a mil deep.

149. (Currently amended) The device of any one of claims ~~93~~91, 97, 98, 102, 107, 109, 111, 115, 119, 121, 122, 123, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 50% of the teeth that are within the range of 1 tenth of a mil deep to 2 tenths of a mil deep.

150. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 20% of the teeth that are in the range of 1.5 tenths of a mil deep to 1.75 tenths of a mil deep.

151. (Currently amended) The device of any one of claims ~~93~~91, 97, 102, 109, 111, 115, 119, 121, 122, 126, 128, 130, 135, or 137 wherein:

a sample of the circuitry has at least 50% of the teeth that are in the range of 1.5 tenths of a mil deep to 1.75 tenths of a mil deep.

154. (Previously presented) The device of claim 140, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

155. (Previously presented) The device of claim 141, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

156. (Previously presented) The device of claim 142, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

157. (Previously presented) The device of claim 143, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

158. (Previously presented) The device of claim 144, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

159. (Previously presented) The device of claim 145, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

160. (Previously presented) The device of claim 146, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

161. (Previously presented) The device of claim 147, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

162. (Previously presented) The device of claim 148, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

163. (Previously presented) The device of claim 149, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

164. (Currently mended) The device of claim 150, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

165. (Previously presented) The device of claim 151, wherein the circuitry of the electrical device is comprised of multi-layer circuitry, one of said layers comprising said teeth and another of said layers comprising corresponding teeth.

166. (Previously presented) The device of claim 138, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

167. (Previously presented) The device of claim 139, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

168. (Previously presented) The device of claim 140, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

169. (Previously presented) The device of claim 141, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

170. (Previously presented) The device of claim 142, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

171. (Previously presented) The device of claim 143, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

172. (Previously presented) The device of claim 144, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

173. (Previously presented) The device of claim 145, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

174. (Previously presented) The device of claim 146, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

175. (Previously presented) The device of claim 147, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

176. (Previously presented) The device of claim 148, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

177. (Previously presented) The device of claim 149, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

178. (Previously presented) The device of claim 150, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

179. (Previously presented) The device of claim 151, wherein the circuitry is comprised of double sided circuitry, one side comprising said teeth and another side comprising corresponding teeth.

180. (Withdrawn) A process of making the electrical device product of any one of claims 91, 97, 102, 108, 110, 115, 119, 120, 122, 125, 129, 134, or 136, the method including:

forming means for joining by building up a conductive layer on a dielectric material surface remaining from removal of a portion of the dielectric material to form a portion of circuitry in the electrical device.